

I claim:

1. A method for enhancing ocular accommodation, comprising:

making a pre-determined biomechanical alteration of a subject's corneal structure outside of an optical zone of the cornea; and

5 using the biomechanical alteration to create an inflection region in the corneal structure, resulting in enhanced corneal accommodative power.

2. The method of claim 1, comprising

making a topologic measurement of a corneal/scleral region of the subject's cornea in an accommodative state;

10 making another topologic measurement of the corneal/scleral region of the subject's cornea in a non-accommodative state; and

determining a difference value between one and another topologic measurements.

3. The method of claim 1, wherein making a pre-determined biomechanical alteration of
15 a subject's corneal structure comprises a surface ablation of a region of the cornea.

4. The method of claim 1, wherein making a pre-determined biomechanical alteration of a subject's corneal structure comprises an intrastromal corneal ablation.

5. The method of claim 1, wherein making a pre-determined biomechanical alteration of a subject's corneal structure comprises a scleral implant placement.

- 20 6. The method of claim 1, wherein making a pre-determined biomechanical alteration of a subject's corneal structure comprises a conductive keratoplasty.

7. The method of claim 1, wherein making a pre-determined biomechanical alteration of a subject's corneal structure comprises a laser thermal keratoplasty.

- 25 8. The method of claim 1, wherein making a pre-determined biomechanical alteration of a subject's corneal structure comprises a corneal implant.

9. The method of claim 8, wherein the implant is a static implant.
10. The method of claim 8, wherein the implant is a dynamic implant.
11. A method for enhancing ocular accommodation, comprising:
 - making a topologic measurement of at least one of a corneal and a scleral
 - 5 region of a subject's cornea in at least one accommodative state;
 - making another topologic measurement of the corneal/scleral region of the
 - subject's cornea in a non-accommodative state;
 - determining a difference value between the one and another topologic
 - measurements; and
 - 10 determining a biomechanical intervention parameter based upon the difference value,
 - wherein an application of the biomechanical intervention parameter is used to create
 - an inflection region in the cornea structure outside of an optical zone of the cornea.
12. The method of claim 11, wherein making the topologic measurements includes at
- least one of determining an anterior surface curvature data and an elevation data of the
- 15 at least one of the corneal and scleral region.
13. The method of claim 12, wherein the topologic measurements are made in a corneal
- region having a horizontal radius extending beyond about 7.5mm with respect to a
- reference point of the subject's eye.
14. The method of claim 11, wherein making the measurement in at least one
- 20 accommodative state comprises making a plurality of measurements in respective
- accommodating states.
15. The method of claim 14, wherein the accommodative state measurements are static
- and correspond to discreet accommodation distances.
16. The method of claim 14, wherein the accommodative state measurements are dynamic
- 25 and correspond to controllable, variable accommodation distances.

17. The method of claim 11, comprising utilizing pharmacological means to induce the non-accommodative state.

18. The method of claim 11, comprising utilizing target means to induce at least one of the accommodative state and the non-accommodative state.

5 19. The method of claim 11, wherein an application of the biomechanical intervention parameter comprises a surgical modification of the cornea.

20. The method of claim 11, wherein an application of the biomechanical intervention parameter is via conductive keratoplasty.

10 21. The method of claim 11, wherein an application of the biomechanical intervention parameter is via laser thermal keratoplasty.

22. The method of claim 11, wherein an application of the biomechanical intervention parameter is *via* selectively ablating a region of the cornea outside of an optical zone region of the cornea.

15 23. The method of claim 11, wherein an application of the biomechanical intervention parameter is *via* an intrastromal ablation of a region of the cornea.

24. The method of claim 11, wherein an application of the biomechanical intervention parameter is *via* a corneal implant.

25. A system for use in enhancing a subject's capacity to accommodate includes a corneal topography measuring device, a control system and a therapeutic device adapted to
20 modify corneal tissue, operatively connected to the control system,
characterized in that:

the control system is adapted to determine the parameters of a tissue alteration that provides an inflection region in the corneal tissue, wherein said inflection region is located so as to allow increased flexure to the cornea in response to an accommodative stimulus.

26. The system of claim 25, characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system having a horizontal field of view equal to or greater than 10mm and a vertical field of view equal to or greater than 10mm.

27. The system of claim 25, characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system having a horizontal field of view equal to or greater than 16mm and a vertical field of view equal to or greater than 13mm.

28. The system of claim 25, characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system having offset Scheimpflug projection and imaging arms.

29. The system of claim 25, characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system having a pre-warped projection grid that provides a uniform grid spacing on a given reference surface.

30. The system of claim 25, characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system utilizing a projection ray and an imaging ray offset by about 24 degrees.

31. The system of claim 25 characterized in that the corneal topography measuring device is a rasterstereographic corneal topography system utilizing a high intensity LED as an intensity source in the grid projection subsystem.